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ABSTRACT

The current efforts of the Association of American Medical Colleges to test the feasibility of broadening the application, utility, and scope of the cost-finding studies conducted by many academic health centers and individual schools of the health professions are examined. The current effort is an outgrowth of the existing foundations of cost finding methodology evolved over the past 20 years. Data from a study of five anonymous schools are presented to illustrate the kind of information this study approach can generate. The study indicated that it is possible to trace the funding sources for the resources utilized by a medical school to carry forward major individual programs. Because the study design prompted the use only of already existing data, not all funds available to the schools could be analyzed and the resources supported, by program, specifically identified. Improvement in this area is dependent upon further refinement in the institutions' fiscal accounting systems. The study provides a view of the on-going operations of the institution and may provide a tool for managerial decision making. (LDH)

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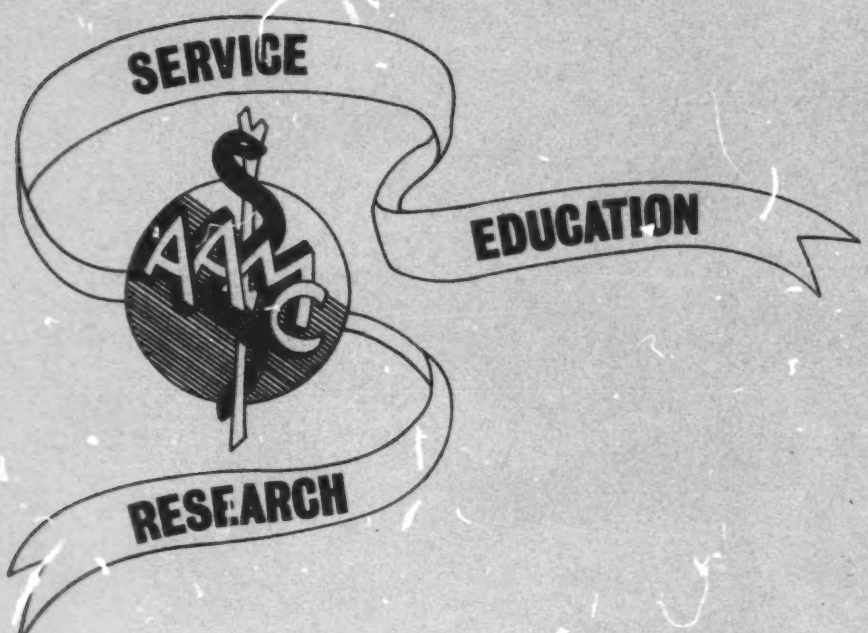

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Medical School Programs Resources and Financing A Methodological Approach

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Medical School Programs - Resources and Financing

Introduction and Background

For two decades, the Association of American Medical Colleges has fostered the conduct of analytical studies by the medical education community on various phases of medical school activities and operations. The Association has also been active in the development of new and improved study approaches and methodologies. These analytical efforts have a common objective - to enhance the internal administration and management of the institution and, where appropriate, to provide insights and information to all who are concerned with furthering National goals and objectives in medical education.

This report focusses upon the current endeavor of the Association to test the feasibility of broadening the application, utility, and scope of the cost-finding studies conducted by many academic health centers and individual schools of the health professions.

The current effort is an out-growth of, and builds upon, the existing foundations of cost finding methodology, which, with AAMC involvement, has evolved and been refined over the past twenty years since Augustus Carroll's pioneering efforts.[1] These refinements and developments have brought about greater comparability, among institutions, of the analytical results, through the use of agreed upon procedures and guidelines developed by the Association, and the provision of necessary detail to explain differences from and inconsistencies with the published guidelines. As now carried out, such studies do provide a comprehensive view of individual program costs -- that is, the dollar value of the resources, both paid for and contributed, that are utilized in conducting medical school programs. Insight into the funding sources that make possible the employment of these resources, however, has generally been available only for the institution's programs in the aggregate.

The need for additional incisive views of medical school activities has become increasingly apparent with the growth of academic medical center operations, the concomitant more complex infrastructure, and the current fiscal stringencies confronting the medical education community.

In the last decade the number of medical schools increased from 87 to 114, and medical school expenditures, in total, more than tripled, from $700 million in 1963-64 to $2,400 million in 1973-74. Of these amounts, support from Federal, state and local governments and other sources for biomedical research rose from $312 million to $625 million; for sponsored teaching and training activities from $85 million to $315 million; and for the provision of community health services and the creation of regional medical programs from $11 million to $328 million. Medical school

expenditures for all other operating activities increased from $290 million to $1,150 million.

In the same period, the total teaching responsibility of medical school faculty, in terms of full-time equivalent students,[2] increased from 70,000 students in 1963-64 to 120,000 in 1973-74, and the number of full-time faculty from 14,500 to 33,200. The academic medical center has also assumed a greater role as a provider of health care. University hospitals and their major teaching affiliates accounted for 23 percent of all hospital beds in 1973, as compared with 9 percent in 1963. In 1970, these teaching hospitals reported one fifth of all hospital operating expenditures, an increase from the 14 percent recorded in 1965.[3]

Medical schools have thus responded to the Nation's urgent demands for increased numbers of trained professionals, for the search for new knowledge to combat disease through extensive biomedical research activities, and for the provision of health care that makes available the most appropriate and latest scientific developments.

The evolving organizational structure required to produce these desiderata has been aptly described in the following passage.[4]

> "Traditionally, the medical school has been the main axis of the education establishment for medicine. However, with the growth in knowledge, technology, and social demand, concentric circles of activity in ever-increasing numbers and larger diameters have developed around this formerly simple axis. The result is a larger and more complex organizational structure - the academic medical center - which educates and trains most of the health professionals, including physicians, dentists, nurses, and new types of health workers. It carries out the greater part of all biomedical research; provides more and more preventive and curative medical care; and undertakes investigations into how to make this care more accessible, of higher quality, and more effective and efficient in its delivery. The interests of the academic medical center range from fundamental research in molecular biology to the delivery of health services in underserved communities."

But marshalling the resources required for these activities, and assuring their proper allocation has become an act of managerial legerdemain, in the light of the current stringent fiscal situation, when sources of support which in the past could be counted upon, have already or are threatening to become evanescent. These range from the threatened lower levels and more stringent conditions of Federal support for undergraduate medical education (the recent and heralded indication of a Federal commitment to the Nation's health manpower education institutions), to the

budgetary squeeze affecting such longer established objectives as the search for new biomedical knowledge, to the regulations affecting reimbursement for professional services provided by teaching hospital faculty, to the recession caused lowered fiscal resources of state and local governments, and of traditional nongovernmental contributors --through gifts and grants --- to educational institutions.

It is against this background that this study has been undertaken, to determine whether it is feasible, by testing a set of assumptions and a methodology, to develop a set of data which may provide specific information on the program utilization of resources and the means to pay for them. If successful, institutions which choose to conduct such a study would have available a broader factual basis for the decisions that have to be made for the orderly management of the institution's programs. Such studies, if conducted by a large or representative number of institutions, would also provide information for sound governmental policy decisions affecting program resource utilization and funding requirements for the Nation's medical center universe.

Study Procedure

It was deemed necessary to investigate the feasibility of deriving information on program resources and financing because of what appeared to be insurmountable difficulties experienced in a previous attempt by the Association to trace the sources of financing for the resources utilized in the conduct of just one of the programs of the medical school. A report of that previous attempt indicated that "-the conventional reporting of (medical school) fiscal information is inadequate for determining the income flows to support particular operating programs of the medical school---"[5]

Also, the experience of AAMC staff to be gained in conducting a limited study, and in learning first hand of the difficulties that might be encountered in deriving the necessary information, would be essential before any further decision could be made regarding a broader attempt to derive information on program resources and financing for a larger number of institutions.

Finally, at the outset of the study it was decided that the counsel of an Advisory Group would be essential to assist AAMC staff in determining the proper course the investigation should take. Consequently, a group composed of medical school administrators, planning coordinators, business officers, and hospital administrators was appointed.

Study Guidelines

In planning the study, the Advisory Group and AAMC staff set forth the following guidelines:

1. Since the objective was to test assumptions and methodology, any data resulting from the investigation would be only illustrative of the kinds of information that a resource-financing study so constructed would produce.

2. The feasibility study would be limited to five medical schools; the time allotted for the study precluded a greater number; a group of five schools was considered adequate for surfacing the problem areas that might be encountered in a broader application of the study.

3. The schools would be selected primarily because of their staffs' expertise in conducting analytical cost studies; these schools would have in hand cost-finding data, relating to the 1973-74 school year, which would form the data base for this study, plus such other information --- in readily retrievable form --- as would be required.

4. The participating schools would not be identified.

5. To assure consistency among the five schools of the procedures applied, to avoid burdening the participating schools in an experiment that might not prove feasible, and to test the possibility of using existing data, AAMC staff would be directly involved in conducting the study. The necessary information would be derived from data already available at the schools. The schools' staff would advise the AAMC team to assure proper use and interpretation of the institution's data.

Study Results

Representatives of the five participating schools, the Advisory Group and AAMC staff in reviewing the results of the study, have concluded that:

1. The study demonstrated the possibility of tracing the funding sources for the resources utilized by a medical school to carry forward major individual programs, but

2. because the study design prompted the use only of already existing data, not all funds available to the schools could be analyzed and the resources supported, by program, specifically identified. Improvement in this area, however, is dependent upon further refinement in the institutions' fiscal accounting systems. Moreover,

3. the study, however generally successful in achieving its objective, must be viewed as a good beginning, with further refinements in methodology and assumptions evolving from further application. This would parallel the development of cost finding procedures which were improved

over the years by earnest discussion and critique by the medical education community. But it must be emphasized that

4. only a retrospective view of an institution's operations is provided by a study designed to balance each resource input by the funds that finance the acquisition of that resource. This may be a misleading indication of the fiscal situation at the institution. The balance may have been achieved only through use of endowment principal, or through borrowing, or emergency assistance may have been provided by the parent university, or by a state legislature, or a Federal financial distress grant may have helped make ends meet. Additional analytical memoranda and studies are needed, therefore, to illuminate the complete fiscal situation at the institution. Additional studies are also necessary to overcome the limitation that

5. the study provides a view of the on-going operations of the institution; measures to bring about desired changes in operations and programs must be the subjects of further investigation. This approach does provide additional information helpful for managerial decisions, even though

6. the scope of the study has been limited to programs of the medical school, and to the teaching responsibility of the medical school faculty. The possibility should be explored of expanding the coverage to include the education activities of personnel, who are not medical school faculty, at teaching hospitals affiliated with the medical school, but

7. the usefulness of the study in providing an additional tool for managerial decisions at the institution level has to be determined by the institution for itself. The usefulness of the approach to concerned forces outside the medical education community will be conditioned upon the extent to which reliable aggregate information on medical school resource utilization and funding mechanisms becomes available. Finally,

8. the data produced by this feasibility study for the five participating schools are presented in this report only to illustrate the kind of information this study approach can generate. The five schools collectively are not necessarily representative of the spectrum of medical education, and since they were selected for participation for other reasons the data for the five schools have not been aggregated.

Next Steps

With the experience obtained from this feasibility study, AAMC staff, with the advice and help of the staff of the five participating schools, the Advisory Group, and consultants, will produce a procedural manual and guidelines

covering the assumptions and methodology underlying this feasibility study.

If resources permit the guidelines and procedures established in the manual will be applied to an additional group of medical schools. This additional experience, together with the lessons learned from the feasibility study will be the basis for discussions among the medical education community, governmental officials and other interested parties, leading to further refinement of the procedures, methodology, and agreed upon guidelines.

Plan and Results of the Feasibility Study

Selection of Schools

As noted above, the selection of the schools to participate in the study was determined primarily on the basis of the expertise of their staff in conducting analytical cost finding studies, the availability of cost-finding data covering the 1973-74 year, and the availability of additional detailed information, notably on the sources of funds supporting the acquisition of resources.

Five schools --two private and three public-- agreed to participate in the feasibility study. The institutions are located in the Northeast, North Central, South and West regions. Together these schools account for almost six percent of all medical school expenditures, and five percent of all undergraduate medical students.

Data Elements for the Study

The study objective -- to measure resource inputs to individual programs, and the sources of funds to pay for them -- define the elements to be investigated, i.e. the individual programs, resources, and sources of funds.

1. The major individual programs of the medical school for which the resource inputs were derived are -

- education
- research
- medical service provided by faculty and staff of the medical school
- community service
- administration

The education program was further divided into specific programs for:

- undergraduate medical education, leading to the doctor of medicine degree;
- graduate medical education - the education programs for interns and residents;

- master's and doctoral degree programs for candidates in the basic and clinical sciences;
- post M.D. and post Ph.D. training programs, primarily to train for careers in research,
- programs for students in health professions such as nursing, dentistry, allied health;
- continuing medical education; and
- educational programs for students enrolled in other units of the parent university who may be instructed by medical school faculty.

In summary, the programs the study covered are those for which the medical school faculty and staff have a major and direct responsibility and involvement. By design, activities and operations of other units of the academic medical center - most importantly the hospital and outpatient care activities -- were excluded.

2. The individual resource inputs that were measured in dollar terms, are-

- faculty - full and part-time;
- supporting staff;
- house officers;
- graduate students;
- supplies and services (other than personnel)
- equipment

The input to medical school programs of the contributed services of volunteer faculty was also measured. It was deemed necessary to explore the feasibility of doing this, if the approach is to have wider applicability. Omitting the contributions of volunteer faculty as a resource input where such contributions are significant would make comparisons misleading with the resource inputs for schools where, instead, paid faculty are the alternative.

To assure comparability of treatment among the schools, a uniform procedure was also tested for measuring, as a program resource input, the physical facilities necessary to house the other resource inputs.

3. The sources of funds supporting the acquisition of resources are those restricted by the provider of the fund to a specific use, and on the other hand, funds that may be used at the school's discretion, in the absence of restrictions as to the use of the funds. -

Restricted funds - are those specifically provided to support -

- Research, Federal and nonfederal sources (state and local, private gifts, etc.);
- Teaching and training, by level of training supported
- Undergraduate medical education, including Federal capitation grants

- Graduate medical education, the training of interns and residents
- Masters and doctoral degree programs
- Post-doctoral programs
- Continuing medical education
- Medical service funds made available to the institution from professional health services, the purposes for which these funds are to be used may or may not be designated;

- Unrestricted, or general funds, are an aggregation of funds available to the institution where the use of the funds is not restricted to a specific purpose. This includes state appropriations and subsidies, unrestricted endowment funds, and other funds that were not carried in sufficient detail in the school's accounts so that their use to acquire specific resources for particular programs could be traced. This includes such fund sources as student tuition payments, and recovery of indirect costs.

Assumption and Methodology

The basic assumption underlying the methodology employed in this feasibility study is the notion that funds restricted or stipulated for specific purposes pay for the acquisition of the resources utilized in accomplishing that specific purpose, and unrestricted funds pay for those resources utilized by the school in carrying forward programs that are not covered by restricted funds.

The methodology builds upon this assumption. The first step in the methodology employed in the investigation at the five schools was to establish the resource inputs utilized in carrying forward the school's programs. For the faculty, and in some instances, for supporting staff, graduate students and house officers, this was based upon data already available at the school from personnel surveys and interviews establishing program effort distributions for use in the institution's cost-finding study. The schools also had procedures for allocating other resource inputs -- supplies, supporting services, equipment -- to particular programs. Other inputs to the programs - the operation and maintenance of the facilities required, and general administration were also shown as inputs to each program, as appropriate. All the resource inputs were measured in dollar terms. In brief, the institution's already developed set of data for its own cost finding investigations and for the school's other purposes, were used for this study.

Methodology

Next, the methodology called for going beyond the established procedures of the cost-finding approach by focussing upon the sources of funds drawn upon to provide the resource input.

The following discussion and the accompanying illustrative material describe the application of the methodology.

1. Let us assume that resource A (which can stand for any resource - faculty, supporting staff, supplies, etc.) is utilized by the school as shown in illustration 1.

Illustration 1

	Total Resource Input	Undergrad Med. Educ.	Post-doc Students	Research	Admin.
Resource A	$30,000	$6,000	$9,000	$13,500	$1,500

and the sources of funds supporing this $30,000 resource are:

Research grant - $10,000

Training grant for post-doctoral students - $5,000

and unrestricted funds available to the institution - $15,000

The methodology calls for first allocating the $10,000 research grant to the $13,500 input of resource A to the research program, and the $5,000 training grant for post-doctoral students to the $9,000 input of this resource to the education of postdoctoral students. The situation up to this point is shown in Illustration 2.

Illustration 2

	Total	Undergrad Med. Educ.	Postdoc Students	Research	Admin.
Resource A - Inputs less restricted Source of funds -	$30,000	$6,000	$9,000	$13,500	$1,500
Research Grants				10,000	
Training Grants			5,000		
Unfunded input	$15,000	$6,000	$4,000	$ 3,500	$1,500

This unfunded input --a total of $15,000, in this case is paid for by the unrestricted (or general) funds of the institution.

The methodology also accomodates the situations where funds provided to support one activity may also support the same resource input utilized in a joint activity, with the further provision that teaching and training funds have been allocated only to the educational programs utilizing the supported resource. Funds that do not carry with them a stipulated or implicit intent are allocated after all stipulated funds have been exhausted to cover the resources required to carry forward the programs for which the stipulated funds have been made available.

The methodology followed for this feasibility study called for a certain level of detail to be pursued. The school's faculty is its most significant resource to accomplish the school's objectives. The most accurate picture of the allocation of this resource to the school's end programs, and the depiction of the source of funds to pay for this resource can best be obtained by utilizing the relevant data for each faculty member -namely, allocations of the individual faculty member's effort (or time) to specific programs, together with information on the sources of funds for each faculty member's compensation. This has been accomplished without revealing to AAMC the identity of the faculty.

While the most detailed picture is provided when the procedure is executed for each faculty member, rather than for department aggregates, or for all basic science departments, or all clinical science departments, or for the medical school in its entirety, it is obvious that the methodology can be applied at any level or aggregation. This can be illustrated by assuming a three-member faculty for a department, and tracing through the methodology for this hypothetical case.

2. Let us assume that the faculty effort, measured in thousands of dollars, is distributed as shown in Illustration 3.

Illustration 3
(In thousands of dollars)

Faculty Member	Total Compensation	Distribution of Effort				
		Undergrad. Med. Educ.	Postdoc. Educ.	Research	Med. Serv.	Comm. Serv.
A	$20	$5	$5	$5	$5	
B	30		6	12	3	$9
C	40	4	12	8	16	
TOTAL Dept.	$90	$9	$23	$25	$24	$9

ILLUSTRATION 4

(Thousands of Dollars)

FACULTY MEMBER	Undergrad. Med. Educ.		Postdoc Educ.		Research		Medical Services	Community Services
A - Program Involvement	5		5		5		5	
Compensation								
Postdoc. Trng. Grants (2)			2					
General Funds (18)	5		3		5		5	
B - Program Involvement			6		12		3	9
Compensation								
Postdoc. Trng. Grants (4)			4					
Research Grant (10)					10			
Medical Serv. Income (6)							3	
General Funds (10)			1.5		1.5			7
Plus Residual medical service income (3)	13	2	.5	2	.5			2
C - Program Involvement	4		12		8		16	
Compensation								
Postdoc. Trng. Grant (2)			2					
Research Grants (10)					8			
Medical Service (25)							16	
General Funds (3)	.9		2.1					
Plus residual research grants (2)	.5	4	1.5	10				
Medical Service (9)	2.6	14	6.4					

The sources of compensation for each faculty member, again in thousands of dollars, are as follows:

Faculty member				
A	Total			$20
	Post-doctoral training grant	$2		
	General funds of the institution	$18		
B	Total		$30	
	Postdoctoral training grant	$4		
	General funds	$10		
	Research grant	$10		
	Medical service income	$6		
C	Total			$40
	Postdoctoral training grant	$2		
	General funds	$3		
	Research grants	$10		
	Medical service	$25		

Taking each faculty member and allocating his source of compensation to the programs in which he is engaged, following the methodological procedure outlined above yields the results shown in Illustration 4.

Note: For faculty members B and C, the general funds and the residuals of restricted fund income supporting these faculty members have been allocated proportionately to the programs with unfunded balances.

The result obtained for this hypothetical department, by summing the source of funds allocations for the individual faculty members A, B, and C, is shown in Illustration 5.

Illustration 5
(Thousands of Dollars)

	Total	Undergrad. Med. Educ.	Postdoc. Educ.	Research	Medical Service	Community Service
Total Dept. Prog.	$90	$9	$23	$25	$24	$9
Postdoc. trng. grnts.	8		8			
Research grants	20	.5	1.5	18		
Medical service	31	2.6	6.9	.5	19	2
General funds	31	5.9	6.6	6.5	5	7

If the allocation methodology, taking total departmental sources of funds, is applied to the aggregate faculty effort distribution, a different pattern results (Illustration 6).

A comparison of the two different patterns --- allocating sources of funds on an individual faculty basis, and on the departmental aggregate basis --- is shown in Illustration 7.

Although the most detailed view of the resource-financing situation is obtained when the methodology is applied on an individual faculty basis, managerial decisions for effective resource allocation may also require information derived on a departmental basis. The methodology, it must be emphasized, can be applied at any level of aggregation or on an individual faculty basis, as desired.

3. The methodology outlined for the faculty resource has been applied to the other resource inputs, using the level of detail available at each institution. For some participating schools the information for supplies, supporting services, and equipment was available in detail, at the departmental level; for other schools aggregates for the institution were most readily available, with one account combining supplies and equipment.

4. The coverage for the use of physical facilities as a resource input was accomplished as follows. The schools in the study are not unusual in that they use different accounting methods for estimating an annual plant depreciation charge. To obtain a uniform base, it was necessary to develop a standard procedure for measuring the use of facilities as a resource for the school's programs. For this study it was assumed that the value of the facility could be represented by the cost that the school would have to bear in the year covered by the study, if it had to replace or recreate the facility with a new one equal in size and with the same type of space.

Replacement cost in the study was derived by applying prevalent unit costs for each of the types of building space to the amounts of space reported by the school for each of the school's programs. The unit costs were adjusted to reflect the differences in the construction costs for the regions in which the schools are located, and they represent mid-1974 construction costs.

To arrive at the imputed annual facility use, it was assumed that the school would borrow the entire sum needed for the replacement of the facility at an annual interest rate of 8 percent, and repay this sum (principal and interest) in fifty equal annual installments. This imputed facility use estimate excludes costs for operation and maintenance which are covered elsewhere.

Illustration 6

(Thousands of Dollars)

	Total	Under-Grad Med Educ	Post-doc Educ	Research	Medical Service	Comm Service
Total Department Programs	$90	$9	$23	$25	$24	$9
Post-doc training grants	8		8			
Research grants	20			20		
Medical service Programs to be funded	31	9	15	5	24	9
General funds plus research 38	31	7.3	12.2	4.1		7.4
medical service	7	1.7	2.8	.9		1.6

Illustration 7

(Thousands of Dollars)

	Total	Under-Grad Medical		Post-doc Educ		Research		Medical Service		Comm Service	
Total Dept. Prog.	$90	$9		$23		$25		$24		$9	
		Indiv Fac	Dept Aggregate	Indiv Fac	Dept Aggregate	Indiv Fac	Dept Aggr	Indiv Fac	Dept Aggr	Indiv Fac	Dept Aggr
Post-doc trng grants	8			8	8						
Research grants	20	.5		1.5		18	20				
Medical service	31	2.6	1.7	6.9	2.8	.5	.9	19	24	2	1.6
General funds	31	5.9	7.3	6.6	12.2	6.5	4.1	5	-	7	7.4

5. The allocation of resource inputs and income flows to individual programs where the utilization of one resource produces outputs for more than one program was accomplished in this feasibility study on the basis of how the participating school handled the joint-product problem. This may have been accomodated through the effort distribution surveys by the faculty reporting, for instance, on the mix of students who were present at the time the faculty member was engaged in a research activity, or who accompanied the faculty member on a patient round. In other instances, necessary adjustments for joint -product activities were made at an aggregate level too high to be reflected in the information necessary for this feasibility study.

The Data Produced

A series of tables has been developed by computer application of the methodology to the data derived for the participating schools.

As already noted, the tabular material is presented only to indicate some of the kinds of information the study can provide; additional cross-tabulations, including detail by department, by individual resource input, and by individual sources of funds, can be readily retrieved from the information developed by the methodology for any school conducting such a study.

To preserve promised confidentiality, there is no identification of the data with the participating school, and actual dollar figures are not shown; instead the data are presented in percentage distribution form. School-by-school comparisons of the data may not be meaningful, and may be misleading. While a uniform methodology was followed in deriving the information, the schools did differ in the amount and applicability of the underlying detail available for the study. And since the schools were selected on grounds other than the belief that combined they represent a cross-section of the medical education community, the data for all five schools are not considered to be representative, and have not been aggregated.

For some perspective, however, of the differing magnitudes of the programs at the five schools, an introductory table is presented which compares the programs at the participating schools. This was accomplished by selecting one school as the basis for comparison. That is, the dollar magnitude for each individual program at school A was established as 100; index numbers were then computed, as relative to school A, for the programs at each of the other four schools. (Table 1).

For each school in the study, the data derived from the feasibility study show:

1. For each individual program, the proportion of the individual program total supported by each major source of funds (Tables 2 - 6);

2. For each source of funds, the proportion of the fund total supporting each major program (Tables 7 - 11);

3. For each individual program, the proportion of the individual program total represented by each resource input (Tables 12 - 16);

4. For each resource input, the proportion of the total resource input utilized by each major program (Tables 17 - 21).

Because the total general fund category is so significant a proportion of the institution's total funds, tables 2 to 6 also show, as addendum entries for each school, the component sources that make up the general fund. Further refinement in the accounting structure of the medical school will be required in order to provide the necessary detail to show the resource and program supported by the components of the general fund. Where the primary component is a state appropriation, however, it is questionable whether any further breakdown will be possible.

Within the limitations already noted, the data summarized in the accompanying tables do show a varied pattern of both resource inputs and funding sources for the five schools, reflecting differing educational objectives, curriculum arrangements, and particular situations underlying the institution's unique individuality.

[1]Augustus J. Carroll, A Study of Medical College Costs, Association of American Medical Colleges, 1958. See the Appendix of this report for a summary of the development of cost allocation studies.

[2]The number of full-time equivalent students includes undergraduate medical students, interns, residents, predoctoral and postdoctoral students in the basic and clinical sciences, all of whom are counted as full-time students, and the full-time equivalent of students on a less than full schedule basis who are instructed by the medical school faculty. These are students in health professions such as dentistry, nursing, allied health.

[3]The data on medical school expenditures, students, faculty, and hospital involvement are published annually in the Education Number of the Journal of the American Medical Association, and that Association's Directory of Approved Internships and Residencies.

[4]John A. D. Cooper, "The Academic Medical Center As A Social Force," in Lucille S. Block (ed.) Population Change: A Strategy for Physicians (Washington, D.C.: Association of American Medical Colleges, 1975), pp. 204-205.

[5]Association of American Medical Colleges, Financing Undergraduate Medical Education, Journal of Medical Education, Vol. 49, November, 1974, p. 1097.

TABLES

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NOTE: 0 indicates less than .5 percent.
- indicates program, resource, or source of funds not reported by the school.

Detail may not add to totals because of rounding.

TABLE 1

Comparison of Program Levels - Five Participating Schools
1973-74

School A = 100

	A	B	C	D	E
Total Programs	100	36	146	35	54
Education					
Undergraduate Medical	100	59	110	39	122
Graduate Medical	100	29	84	25	78
Post-doctoral	100	39	261	55	-
Masters-Doctoral	100	27	110	22	92
All Other Education Programs	100	121	298	50	240
Research	100	33	169	20	16
Medical Service	100	27	188	43	27
All Other Programs	100	28	-	114	117

TABLE 2

School A

Distribution of Program Support,
By Sources of Funds, 1973-74

(Percentage Distribution)

Source of Funds	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	100	100	100	100	100	-	100	100	100	100	100	-
Restricted													
Education													
Undergraduate Medical	3	23	0	1	1	0	-	1	0	0	0	0	-
Graduate Medical	1	0	4	0	0	0	-	0	0	0	0	0	-
Post-doctoral	3	7	6	28	11	18	-	13	0	0	1	1	-
Masters-Doctoral	0	0	0	1	9	0	-	0	0	0	0	0	-
Continuing Medical	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Health Professions	0	0	0	2	6	1	-	2	0	0	0	0	-
Other	1	2	1	2	7	7	-	8	0	0	1	1	-
Research	18	0	0	19	1	0	-	1	48	0	1	0	-
Medical Services	38	24	62	16	5	11	-	15	11	93	21	5	-
Other	0	0	0	0	0	0	-	0	0	0	13	0	-
Unrestricted													
General Funds	22	33	13	28	49	44	-	47	21	2	55	88	-
Contributed Services	2	2	4	2	4	10	-	4	1	2	6	2	-
Imputed Facility Use	10	7	10	3	6	9	-	9	18	3	2	1	-

Addendum:

General Fund	100%
Tuition	16
State Funds	29
Endowment	36
Indirect Cost Recovery	19

TABLE 3

School B

Distribution of Program Support,
By Sources of Funds, 1973-74

(Percentage Distribution)

Source of Funds	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	100	100	100	100	100	100	100	100	100	100	100	-
Restricted													
Education													
Undergraduate Medical	5	15	3	0	3	19	4	5	0	3	2	2	-
Graduate Medical	1	1	9	1	0	1	1	0	0	0	0	0	-
Post-doctoral	2	1	1	51	8	1	4	2	0	0	0	0	-
Masters-Doctoral	-	-	-	-	-	-	-	-	-	-	-	-	-
Continuing Medical	1	0	0	0	0	18	0	0	0	0	1	0	-
Other Health Professions	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	1	1	1	0	0	1	1	1	0	0	0	0	-
Research	21	2	2	7	5	5	2	3	59	1	4	3	-
Medical Services	18	10	17	11	4	7	6	11	4	67	18	12	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-
Unrestricted													
General Funds	36	52	38	22	64	33	68	54	24	22	59	53	-
Contributed Services	8	10	26	5	1	10	4	6	1	4	11	28	-
Imputed Facility Use	7	8	3	2	15	2	8	16	11	1	6	1	-
Addendum:													
General Fund	100%												
Tuition	7												
State Funds	71												
Gifts	7												
Indirect Cost Recovery	15												

TABLE 4

School C

Distribution of Program Support,
By Sources of Funds, 1973-74

(Percentage Distribution)

Source of Funds	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	100	100	100	100	100	100	100	100	100	-	-	-
Restricted													
Education													
Undergraduate Medical	4	23	4	3	2	2	4	6	1	0	-	-	-
Graduate Medical	1	0	10	0	0	0	2	0	0	0	-	-	-
Post-doctoral	2	1	4	19	26	3	3	6	0	0	-	-	-
Masters-Doctoral	1	-	0	17	7	0	2	1	0	0	-	-	-
Continuing Medical	0	0	0	1	0	26	0	0	0	0	-	-	-
Other Health Professions	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-
Research	30	3	6	11	4	3	6	4	65	2	-	-	-
Medical Services	33	14	33	8	10	15	33	22	4	91	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-
Unrestricted													
General Funds	25	47	42	33	45	43	45	55	23	7	-	-	-
Contributed Services	-	-	-	-	-	-	-	-	-	-	-	-	-
Imputed Facility Use	4	10	0	8	5	8	5	5	6	0	-	-	-
Addendum:													
General Funds	100%												
Tuition	21												
State Funds	13												
Gifts	9												
Endowment	16												
Indirect Cost Recovery	36												
Other Income	5												

TABLE 5

School D

Distribution of Program Support,
By Sources of Funds, 1973-74

(Percentage Distribution)

Source of Funds	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	100	100	100	100	100	100	100	100	100	100	100	-
Restricted													
Education													
Undergraduate Medical	4	10	3	1	5	10	2	1	8	2	0	0	-
Graduate Medical	0	0	2	0	0	0	0	0	0	0	0	0	-
Post-doctoral	1	1	2	7	3	0	4	2	0	0	0	0	-
Masters-Doctoral	0	0	0	0	1	0	0	0	0	0	0	0	-
Continuing Medical	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Health Professions	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	1	4	3	1	3	0	5	7	1	0	1	0	-
Research	14	7	9	15	4	28	6	4	34	5	25	15	-
Medical Services	14	4	7	4	2	6	6	3	4	35	8	8	-
Other	0	0	0	0	0	0	0	0	0	0	0	0	-
Unrestricted													
General Funds	53	57	55	50	61	56	57	62	47	43	63	75	-
Contributed Services	9	12	18	16	14	0	12	11	0	15	0	0	-
Imputed Facility Use	3	5	0	6	6	0	8	8	6	0	3	1	-

Addendum:

General Funds	100%
Tuition	3
State Funds	83
Local Government Funds	4
Gifts	2
Indirect Cost Recovery	8

TABLE 6

School E

Distribution of Program Support,
By Sources of Funds, 1973-74

(Percentage Distribution)

Source of Funds	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	100	100	-	100	100	100	100	100	100	100	100	100
Restricted													
Education													
Undergraduate Medical	3	4	4	-	3	1	4	3	3	1	0	1	2
Graduate Medical	0	0	1	-	0	0	1	0	0	0	0	0	0
Post-doctoral	1	0	0	-	2	1	2	1	1	1	0	0	1
Masters-Doctoral	-	-	-	-	-	-	-	-	-	-	-	-	-
Continuing Medical	0	0	0	-	0	0	0	0	0	0	0	0	0
Other Health Professions	0	0	0	-	0	0	0	0	0	0	0	0	0
Other	0	0	0	-	0	0	0	0	0	0	0	0	0
Research	7	3	4	-	1	4	1	7	40	2	2	4	2
Medical Services	14	9	19	-	2	0	12	17	8	34	9	16	17
Other	2	1	2	-	0	3	0	3	0	2	7	5	13
Unrestricted													
General Funds	68	77	65	-	85	87	74	61	41	56	77	73	65
Contributed Services	-	-	-	-	-	-	-	-	-	-	-	-	-
Imputed Facility Use*	2	3	2	-	3	2	2	3	3	2	2	0	0
Equipment	2	3	2	-	3	2	2	3	3	2	3	0	0

Addendum:

General Funds	100%
State Funds	70
University Funds	20
Gifts	3
Indirect Cost Recovery	7

*Imputed facility use reflects the depreciation charge for physical facilities computed by this institution in accordance with the school's accounting policies. The procedure for estimating an imputed facility use followed in this report for the other schools would result in an estimate equal to five percent of the total program for this institution.

TABLE 6A

Distribution of Total Program Support, By Source of Funds Excluding Contributed Services and Imputed Facility Use, 1973-74

(Percentage Distribution)

	SCHOOL				
	A	B	C	D	E
Total	100	100	100	100	100
Restricted					
Education					
Undergraduate Medical	4	6	4	5	3
Graduate Medical	1	2	1	1	0
Post-doctoral	4	2	2	1	1
Masters-Doctoral	1	-	1	0	-
Continuing Medical	-	1	0	-	0
Other Health Professions	0	-	-	-	0
Other	1	1	-	2	0
Research	21	25	31	16	7
Medical Services	44	21	34	15	14
Other	0	-	-	0	2
Unrestricted					
General Funds	25	43	26	60	72

TABLE 7

School A

Distribution of Sources of Funds, By Program, 1973-74

(Percentage Distribution)

Source of Funds	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	13	14	2	4	0	-	2	37	22	3	2	-
Restricted													
Education													
Undergraduate Medical	100	97	0	0	2	0	-	1	1	0	0	0	-
Graduate Medical	100	0	100	0	0	0	-	0	0	0	0	0	-
Post-doctoral	100	29	28	14	15	0	-	8	2	2	1	1	-
Masters-Doctoral	100	0	0	5	92	0	-	0	3	0	0	0	-
Continuing Medical	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Health Professions	100	6	0	7	64	0	-	13	7	3	0	0	-
Other	100	30	15	3	30	0	-	15	1	1	2	3	-
Research	100	0	0	2	0	0	-	0	97	0	0	0	-
Medical Services	100	8	23	1	1	0	-	1	12	53	2	0	-
Other	100	0	0	0	0	0	-	0	0	0	100	0	
Unrestricted													
General Funds	100	20	9	2	10	0	-	5	36	2	8	9	-
Contributed Services	100	11	24	1	7	0	-	4	19	24	8	2	-
Imputed Facility Use	100	10	14	0	3	0	-	2	65	6	1	0	-

TABLE 8

School E

Distribution of Sources of Funds, By Program, 1973-74

(Percentage Distribution)

Source of Funds	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	22	12	2	3	2	4	1	34	17	2	2	-
Restricted													
Education													
Undergraduate Medical	100	64	7	0	2	9	3	1	3	10	1	1	-
Graduate Medical	100	19	75	1	1	1	2	0	1	0	0	0	-
Post-doctoral	100	9	4	55	15	2	10	1	4	0	0	0	-
Masters-Doctoral	-	-	-	-	-	-	-	-	-	-	-	-	-
Continuing Medical	100	6	9	0	0	69	1	0	0	13	2	0	-
Other Health Professions	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	100	31	12	1	6	2	7	1	23	10	3	3	-
Research	100	2	1	1	1	1	0	0	93	1	0	0	-
Medical Services	100	12	11	1	1	1	1	1	8	62	2	1	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-
Unrestricted													
General Funds	100	31	12	1	6	2	7	1	23	10	3	3	-
Contributed Services	100	28	39	1	0	3	2	1	5	9	3	8	-
Imputed Facility Use	100	23	6	0	7	1	5	2	52	3	2	0	-

TABLE 9

School C

Distribution of Sources of Funds, By Program, 1973-74

(Percentage Distribution)

Source of Funds	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	10	8	3	3	1	1	2	43	28	-	-	-
Restricted													
Education													
Undergraduate Medical	100	62	10	3	2	1	1	4	17	2	-	-	-
Graduate Medical	100	1	90	2	0	0	2	1	3	2	-	-	-
Post-doctoral	100	6	15	25	39	2	1	6	2	4	-	-	-
Masters-Doctoral	100	14	2	51	24	0	1	2	5	0	-	-	-
Continuing Medical	100	1	8	6	1	77	0	0	3	4	-	-	-
Other Health Professions	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-
Research	100	1	2	1	0	0	0	0	93	2	-	-	-
Medical Services	100	4	8	1	1	1	1	2	5	78	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-
Unrestricted													
General Funds	100	19	14	4	6	2	1	5	40	8	-	-	-
Contributed Services	-	-	-	-	-	-	-	-	-	-	-	-	-
Imputed Facility Use	100	24	0	6	4	3	1	3	59	0	-	-	-

TABLE 10

School D

Distribution of Sources of Funds, By Program, 1973-74

(Percentage Distribution)

Source of Funds	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	15	10	3	3	0	2	1	22	27	5	12	-
Restricted													
Education													
Undergraduate Medical	100	33	8	1	3	1	1	0	39	12	0	1	-
Graduate Medical	100	3	57	0	0	0	2	0	14	13	0	11	-
Post-doctoral	100	18	26	24	11	0	11	2	7	1	0	1	-
Masters-Doctoral	100	0	0	0	100	0	0	0	0	0	0	0	-
Continuing Medical	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Health Professions	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	100	37	22	1	5	0	7	4	9	7	3	6	-
Research	100	7	7	3	1	1	1	0	52	9	9	12	-
Medical Services	100	4	6	1	0	0	1	0	7	70	3	7	-
Other	100	0	0	0	0	0	0	0	0	0	100	0	-
Unrestricted													
General Funds	100	16	11	2	3	0	2	1	19	22	6	17	-
Contributed Services	100	21	21	5	4	0	3	1	0	46	0	0	-
Imputed Facility Use	100	27	0	6	6	0	6	2	45	2	5	2	-

TABLE 11

School E

Distribution of Sources of Funds, By Program, 1973-74

(Percentage Distribution)

Source of Funds	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	30	21	-	7	1	7	1	11	11	5	6	1
Restricted													
Education													
Undergraduate Medical	100	40	25	-	6	0	9	1	11	4	0	2	0
Graduate Medical	100	6	70	-	0	0	23	1	0	0	0	0	0
Post-doctoral	100	8	14	-	26	1	23	2	9	11	2	4	1
Masters-Doctoral	-	-	-	-	-	-	-	-	-	-	-	-	-
Continuing Medical	100	33	33	-	0	0	22	11	0	0	0	0	0
Other Health Professions	100	37	32	-	1	3	23	3	0	0	0	0	0
Other	100	17	29	-	14	0	11	2	25	0	0	1	0
Research	100	12	12	-	1	1	1	1	64	3	1	3	0
Medical Services	100	19	28	-	1	0	7	1	7	27	3	7	1
Other	100	22	21	-	1	1	1	2	2	12	21	15	2
Unrestricted													
General Funds	100	33	20	-	9	1	8	1	7	9	5	6	1
Contributed Services	-	-	-	-	-	-	-	-	-	-	-	-	-
Imputed Facility Use	100	36	17	-	9	1	7	2	14	9	5	0	0
Equipment	100	36	17	-	9	1	7	2	14	9	5	0	0

TABLE 12

School A

Distribution of Program Support, By Resource Inputs, 1973-74

(Percentage Distribution)

Resource	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	100	100	100	100	100	-	100	100	100	100	100	-
Direct Inputs													
Faculty													
Basic Science Departments	4	2	0	5	17	5	-	12	6	0	3	5	-
Clinical Science Departments	28	24	39	6	7	27	-	22	19	47	34	7	-
Other	1	4	0	0	0	4	-	2	1	0	4	11	-
Supporting Staff													
Basic Science Departments	2	1	0	2	7	2	-	5	5	0	1	2	-
Clinical Science Departments	5	2	3	0	1	2	-	2	10	3	3	1	-
Other	2	9	1	0	1	9	-	5	0	1	10	24	-
Fringe Benefits													
Basic Science Departments	1	0	0	1	3	1	-	2	2	0	1	1	-
Clinical Science Departments	5	4	6	1	1	4	-	4	4	7	5	1	-
Other	1	5	0	0	0	5	-	3	0	0	5	13	-
Interns and Residents	15	11	36	0	0	0	-	0	1	36	0	0	-
Graduate Students	3	1	1	55	18	0	-	1	2	0	0	0	-
Supplies and Equipment													
Basic Science Departments	3	1	0	3	12	3	-	8	5	0	2	3	-
Clinical Science Departments	6	5	0	1	1	5	-	5	13	0	7	1	-
Other	2	6	0	0	0	7	-	4	0	0	7	18	-
Equipment													
Basic Science Departments		INCLUDED IN SUPPLIES AND EQUIPMENT											
Clinical Science Departments													
Other													
Other	1	2	0	2	4	0	-	0	0	0	0	0	-
Operation and Maintenance	4	7	1	16	13	0	-	5	6	1	0	0	-
General Administration	4	7	0	2	6	8	-	8	7	0	9	9	-
Contributed Services													
Basic Science Departments	1	0	0	1	4	1	-	3	1	0	0	1	-
Clinical Science Departments	2	2	4	1	0	9	-	2	0	2	6	0	-
Imputed Facility Use	10	7	10	3	6	9	-	9	18	3	2	1	-

TABLE 13

School B

Distribution of Program Support, By Resource Inputs, 1973-74

(Percentage Distribution)

Resource	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	100	100	100	100	100	100	100	100	100	100	100	-
Direct Inputs													
Faculty													
Basic Science Departments	8	10	4	2	24	3	20	7	7	6	8	14	-
Clinical Science Departments	23	22	28	18	4	21	7	25	10	54	39	30	-
Other	2	1	1	0	0	8	2	0	2	7	1	2	-
Supporting Staff													
Basic Science Departments	3	2	0	0	4	0	6	3	6	0	0	1	0
Clinical Science Departments	6	3	3	4	0	3	1	2	10	5	2	4	0
Other	3	1	0	0	1	9	6	4	5	0	1	0	-
Fringe Benefits													
Basic Science Departments	1	1	0	0	3	0	3	1	2	0	1	1	-
Clinical Science Departments	4	3	4	2	1	3	1	4	4	7	5	3	-
Other	1	1	1	0	0	3	2	1	1	0	1	0	-
Interns and Residents	2	5	5	2	0	0	2	2	0	0	0	0	-
Graduate Students	2	1	0	45	21	0	4	0	0	0	0	0	-
Supplies													
Basic Science Departments	2	2	1	0	5	1	5	2	4	0	1	0	-
Clinical Science Departments	6	5	8	7	1	4	2	6	11	1	7	0	-
Other	4	1	0	0	0	19	2	1	9	0	1	0	-
Equipment													
Basic Science Departments	1	0	0	0	1	0	1	0	1	0	0	0	-
Clinical Science Departments	1	0	0	0	0	0	0	0	1	0	0	0	-
Other	0	0	0	0	0	0	0	0	1	0	0	0	-
Other	2	2	3	0	7	1	9	11	2	1	1	0	-
Operation and Maintenance	3	4	2	2	2	2	2	2	2	2	2	2	-
General Administration													
Contributed Services	8	10	26	5	1	10	4	6	1	4	11	28	-
Basic Science Departments													
Clinical Science Departments													
Imputed Facility Use	7	8	3	2	15	2	8	16	11	1	6	1	-

TABLE 14

School C

Distribution of Program Support, By Resource Inputs, 1973-74

(Percentage Distribution)

Resource	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	100	100	100	100	100	100	100	100	100	-	-	-
Direct Inputs													
Faculty	5	9	6	9	6	4	8	5	6	2	-	-	-
Basic Science Departments	22	25	51	20	14	23	44	33	13	26	-	-	-
Clinical Science Departments													
Other													
Supporting Staff	5	4	0	5	1	0	0	1	6	7	-	-	-
Basic Science Departments	23	3	6	8	28	17	2	17	28	28	-	-	-
Clinical Science Departments													
Other													
Fringe Benefits	1	2	1	2	1	1	2	1	2	1	-	-	-
Basic Science Departments	6	4	8	4	6	5	6	7	5	7	-	-	-
Clinical Science Departments													
Other													
Interns and Residents	-	-	-	-	-	-	-	-	-	-	-	-	-
Graduate Students	-	-	-	-	-	-	-	-	-	-	-	-	-
Supplies	2	2	0	16	2	0	3	0	3	1	-	-	-
Basic Science Departments	7	2	6	8	17	9	0	5	11	3	-	-	-
Clinical Science Departments													
Other													
Equipment	0	0	0	0	0	0	0	0	1	0	-	-	-
Basic Science Departments	1	0	0	1	1	0	0	0	2	0	-	-	-
Clinical Science Departments													
Other													
Other	7	2	4	4	3	3	6	3	1	23	-	-	-
Operation and Maintenance	5	4	7	7	6	5	12	6	7	0	-	-	-
General Administration	11	34	11	8	9	25	13	18	10	2	-	-	-
Contributed Services	-	-	-	-	-	-	-	-	-	-	-	-	-
Basic Science Departments													
Clinical Science Departments													
Imputed Facility Use	4	10	0	8	5	8	5	5	6	0	-	-	-

TABLE 15

School D

Distribution of Program Support, by Resource Inputs, 1973-74

(Percentage Distribution)

Resource	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	100	100	100	100	100	100	100	100	100	100	100	-
Direct Inputs													
Faculty													
Basic Science Departments	7	9	3	7	16	0	8	14	12	2	7	11	-
Clinical Science Departments	23	17	28	24	13	0	22	23	20	23	30	32	-
Other													
Supporting Staff													
Basic Science Departments	4	5	2	4	8	0	4	8	7	1	3	5	-
Clinical Science Departments	9	7	10	12	4	0	9	7	10	8	17	13	-
Other													
Fringe Benefits													
Basic Science Departments	1	1	0	1	2	0	1	2	2	0	1	2	-
Clinical Science Departments	3	2	3	3	1	0	3	2	2	2	4	3	-
Other													
Interns and Residents	1	1	1	1	1	0	1	1	1	1	1	2	-
Graduate Students	-	-	-	-	-	-	-	-	-	-	-	-	-
Supplies													
Basic Science Departments	3	3	1	3	6	0	3	6	5	1	2	4	-
Clinical Science Departments	11	8	11	13	4	0	9	6	10	10	18	15	-
Other													
Equipment													
Basic Science Departments	1	1	0	1	1	0	1	1	2	0	1	1	-
Clinical Science Departments	1	1	1	2	0	0	1	0	1	1	2	2	-
Other													
Other	14	11	12	0	12	100	7	0	13	29	2	0	-
Operation and Maintenance	2	2	2	2	2	0	2	3	2	2	2	3	-
General Administration	8	17	6	6	6	0	8	8	7	5	7	8	-
Contributed Services													
Basic Science Departments	1	2	1	3	5	0	3	4	0	1	0	0	-
Clinical Science Departments	8	10	16	13	9	0	10	7	0	14	0	0	-
Imputed Facility Use	3	5	0	6	6	0	8	8	6	0	3	1	-

TABLE 16

School E

Distribution of Program Support, By Resource Inpucs, 1973-74

(Percentage Distribution)

Resource	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	100	100	-	100	100	100	100	100	100	100	100	100
Direct Inputs													
Faculty													
Basic Science Departments	9	8	2	-	19	0	14	9	23	7	3	6	11
Clinical Science Departments	28	22	42	-	4	0	31	42	26	30	18	41	43
Other													
Supporting Staff													
Basic Science Departments	6	4	2	-	11	1	8	6	12	7	3	4	6
Clinical Science Departments	6	5	8	-		7	3	10	7	6	[illegible]	9	9
Other													
Fringe Benefits													
Basic Science Departments	1	1	0	-	2	0	1	1	2	1	0	1	1
Clinical Science Departments	1	1	2	-	0	2	1	2	1	1	1	2	2
Other													
Interns and Residents	-	-	-	-	-	-	-	-	-	-	-	-	-
Graduate Students	-	-	-	-	-	-	-	-	-	-	-	-	-
Supplies													
Basic Science Departments	5	3	2	-	9	1	7	5	12	8	3	5	6
Clinical Science Departments	7	5	10	-	1	8	4	11	8	7	5	12	10
Other													
Equipment													
Basic Science Departments	-	-	-	-	-	-	-	-	-	-	-	-	-
Clinical Science Departments	-	-	-	-	-	-	-	-	-	-	-	-	-
Other													
Other	12	11	22	-	1	72	3	1	2	27	4	0	0
Operation and Maintenance	7	15	10	-	17	0	6	0	0	0	20	0	0
General Administration	13	19	6	-	28	4	17	8	0	0	34	21	13
Contributed Services	-	-	-	-	-	-	-	-	-	-	-	-	-
Basic Science Departments													
Clinical Science Departments													
Imputed Facility Use	2	3	2	-	3	2	2	3	3	2	2	0	0
Equipment	2	3	2	-	3	2	2	3	3	2	3	0	0

TABLE 17

School A

Distribution of Resource Inputs, By Program, 1973-74

(Percentage Distribution)

Resource	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	13	14	2	4	0	-	2	37	22	3	2	-
Direct Inputs													
Faculty													
Basic Science Departments	100	7	0	2	19	0	-	6	60	0	2	3	-
Clinical Science Departments	100	11	20	0	1	0	-	2	25	37	4	1	-
Other	100	41	4	0	1	0	-	4	15	5	11	19	-
Supporting Staff													
Basic Science Departments	100	4	0	1	12	0	-	4	75	0	2	1	-
Clinical Science Departments	100	5	7	0	1	0	-	1	72	12	2	0	-
Other	100	48	5	0	1	0	-	4	2	6	12	22	-
Fringe Benefits													
Basic Science Departments	100	6	0	2	16	0	-	5	66	0	2	2	-
Clinical Science Departments	100	10	18	0	1	0	-	2	32	32	3	1	-
Other	100	46	5	0	1	0	-	4	7	5	12	21	-
Interns and Residents	100	10	34	0	0	0	-	-	4	52	0	0	-
Graduate Students	100	5	3	32	26	0	-	1	29	4	0	0	-
Supplies and Equipment													
Basic Science Departments	100	6	0	2	18	0	-	6	63	0	2	3	-
Clinical Science Departments	100	11	0	0	1	0	-	2	82	0	4	1	-
Other	100	53	0	0	1	0	-	5	4	0	14	24	-
Equipment													
Basic Science Departments													
Clinical Science Departments		INCLUDED IN SUPPLIES AND EQUIPMENT											
Other													
Other	100	55	0	7	28	0	-	1	9	0	0	0	-
Operation and Maintenance	100	23	2	6	13	0	-	2	51	3	0	0	-
General Administration	100	20	0	1	5	0	-	4	60	0	6	4	-
Contributed Services													
Basic Science Departments	100	5	1	3	25	0	-	10	49	1	2	4	-
Clinical Science Departments	100	14	32	1	1	0	-	2	8	32	10	1	-
Imputed Facility Use	100	10	14	0	3	0	-	2	65	6	1	0	-

TABLE 18

School B

Distribution of Resource Inputs, By Program, 1973-74

(Percentage Distribution)

Resource	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total													
Direct Inputs													
Faculty	100	26	6	0	13	1	9	1	29	12	2	4	-
Basic Science Departments	100	21	14	1	1	2	1	1	15	38	3	3	-
Clinical Science Departments	100	7	3	0	0	8	3	0	28	49	1	2	-
Other													
Supporting Staff	100	14	2	0	5	0	8	1	69	0	0	1	-
Basic Science Departments	100	11	7	1	0	1	1	0	61	15	1	2	-
Clinical Science Departments	100	7	1	0	1	9	10	1	70	0	1	0	-
Other													
Fringe Benefits	100	19	3	0	7	0	8	1	54	5	1	2	-
Basic Science Departments	100	18	13	1	0	2	1	1	33	27	2	2	-
Clinical Science Departments	100												
Other													
Interns and Residents	100	59	33	2	0	0	5	1	0	0	0	0	-
Graduate Students	100	11	0	42	34	0	8	0	5	0	0	0	-
Supplies	100	20	4	0	7	1	8	1	60	0	1	0	-
Basic Science Departments	100	17	15	2	1	2	1	1	57	2	2	0	-
Clinical Science Departments	100	3	1	0	0	12	2	0	80	2	0	0	-
Other													
Equipment	100	13	0	0	5	0	7	0	74	0	0	0	-
Basic Science Departments	100	11	10	1	0	1	0	0	74	0	1	0	-
Clinical Science Departments	100	3	1	0	0	2	3	0	89	0	0	0	-
Other													
Other	100	22	15	0	9	1	15	4	23	8	1	1	-
Operation and Maintenance	100	36	8	2	3	2	2	1	29	15	2	2	-
General Administration	100	34	8	1	3	2	5	1	27	15	2	2	-
Contributed Services	100	28	39	1	0	3	2	1	5	9	3	8	-
Basic Science Departments													
Clinical Science Departments													
Imputed Facility Use	100	23	6	0	7	1	5	2	52	3	2	0	-

TABLE 19

School C

Distribution of Resource Inputs, By Program, 1973-74

(Percentage Distribution)

Resource	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	10	8	3	3	1	1	2	43	28	-	-	-
Direct Inputs													
Faculty													
Basic Science Departments	100	18	10	5	4	1	1	2	49	10	-	-	-
Clinical Science Departments	100	11	19	3	2	1	1	4	24	34	-	-	-
Other													
Supporting Staff													
Basic Science Departments	100	7	0	3	1	0	0	0	52	37	-	-	-
Clinical Science Departments	100	1	2	1	4	1	0	2	54	35	-	-	-
Other													
Fringe Benefits													
Basic Science Departments	100	13	5	4	2	1	0	1	50	24	-	-	-
Clinical Science Departments	100	6	11	2	3	1	1	3	39	34	-	-	-
Other													
Interns and Residents	-	-	-	-	-	-	-	-	-	-	-	-	-
Graduate Students	-	-	-	-	-	-	-	-	-	-	-	-	-
Supplies													
Basic Science Departments	100	8	0	20	5	0	1	0	58	10	-	-	-
Clinical Science Departments	100	2	6	3	7	2	0	2	66	12	-	-	-
Other													
Equipment													
Basic Science Departments	100	0	0	2	0	0	0	0	95	3	-	-	-
Clinical Science Departments	100	2	1	2	3	0	0	0	87	5	-	-	-
Other													
Other	100	3	4	1	1	0	0	1	4	85	-	-	-
Operation and Maintenance	100	9	13	4	4	1	1	3	63	0	-	-	-
General Administration	100	32	8	2	3	3	1	4	40	6	-	-	-
Contributed Services	-	-	-	-	-	-	-	-	-	-	-	-	-
Basic Science Departments													
Clinical Science Departments													
Imputed Facility Use	100	24	0	6	4	3	1	3	59	0	-	-	-

TABLE 20

School D

Distribution of Resource Inputs, By Program, 1973-74

(Percentage Distribution)

Resource	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	15	10	3	3	0	2	1	22	27	5	12	-
Direct Inputs													
Faculty													
Basic Science Departments	100	17	5	3	6	0	2	1	37	8	4	18	-
Clinical Science Departments	100	11	13	3	2	0	2	1	19	27	7	17	-
Other													
Supporting Staff													
Basic Science Departments	100	18	4	3	6	0	2	1	39	7	4	15	-
Clinical Science Departments	100	11	11	3	1	0	2	1	22	23	9	17	-
Other													
Fringe Benefits													
Basic Science Departments	100	18	4	3	6	0	3	1	39	7	4	15	-
Clinical Science Departments	100	11	12	3	1	0	2	1	21	26	8	16	-
Other													
Interns and Residents	100	12	12	3	2	0	1	0	19	30	5	15	-
Graduate Students													
Supplies													
Basic Science Departments	100	17	4	3	6	0	3	2	40	6	4	15	-
Clinical Science Departments	100	11	11	3	1	0	2	0	21	25	9	16	-
Other													
Equipment													
Basic Science Departments	100	19	3	2	5	0	3	1	43	5	3	16	-
Clinical Science Departments	100	11	11	4	1	0	2	0	21	26	8	16	-
Other													
Other	100	11	9	0	2	2	1	0	20	54	1	0	-
Operation and Maintenance	100	12	11	3	3	0	3	1	24	23	6	15	-
General Administration	100	31	8	2	2	0	2	1	19	18	5	12	-
Contributed Services													
Basic Science Departments	100	34	12	8	15	0	6	3	0	23	0	0	-
Clinical Science Departments	100	19	22	4	3	0	3	1	0	48	0	0	-
Imputed Facility Use	100	27	0	6	6	0	6	2	45	2	5	2	-

TABLE 21

School E

Distribution of Resource Inputs, By Program, 1973-74

(Percentage Distribution)

Resource	Total Program	EDUCATION							Research	Medical Service	Community Service	Administration	Other
		Undergraduate Medical	Graduate Medical	Post-Doctoral	M.S. Ph.D.	Continuing Medical	Other Health	Other					
Total	100	30	21	-	7	1	7	1	11	11	5	6	1
Direct Inputs													
Faculty													
Basic Science Departments	100	25	5	-	15	0	11	1	27	8	2	4	1
Clinical Science Departments	100	23	31	-	1	0	8	2	10	12	3	8	1
Other													
Supporting Staff													
Basic Science Departments	100	23	6	-	14	0	11	1	24	14	2	4	1
Clinical Science Departments	100	25	29	-	2	1	3	2	13	12	3	8	1
Other													
Fringe Benefits													
Basic Science Departments	100	27	6	-	13	0	11	1	22	13	2	3	1
Clinical Science Departments	100	23	28	-	1	1	7	2	12	12	3	8	1
Other													
Interns and Residents	-	-	-	-	-	-	-	-	-	-	-	-	-
Graduate Students	-	-	-	-	-	-	-	-	-	-	-	-	-
Supplies													
Basic Science Departments	100	19	7	-	13	0	10	1	25	16	3	5	1
Clinical Science Departments	100	23	31	-	1	1	4	2	13	11	3	10	1
Other													
Equipment													
Basic Science Departments	-	-	-	-	-	-	-	-	-	-	-	-	-
Clinical Science Departments	-	-	-	-	-	-	-	-	-	-	-	-	-
Other													
Other	100	27	37	-	1	6	2	0	2	24	1	0	0
Operation and Maintenance	100	61	1	-	17	0	6	0	1	0	13	0	0
General Administration	100	43	9	-	16	0	9	1	0	0	12	9	1
Contributed Services	-	-	-	-	-	-	-	-	-	-	-	-	-
Basic Science Departments													
Clinical Science Departments													
Imputed Facility Use	100	36	17	-	9	1	7	2	14	9	5	0	0
Equipment	100	36	17	-	9	1	7	2	14	9	5	0	0

APPENDIX

SEQUENCE OF COST ALLOCATION DEVELOPMENT

Date	Development	Scope and Significance
1956	Initiation of original Gus Carroll Study to test possibility of programmatic costing of medical schools, enabling comparisons to be meaningfully made.	19 Schools included in this pioneer venture using uniform methodology.
1958	Publication of A Study of Medical College Costs , by Gus Carroll and AAMC.	A classic work on medical school financing and a report of the results of the study began in 1956.
1962	Pilot study of program cost estimating in a teaching hospital initiated.	Originally designed to identify educational costs in teaching hospitals, this study (subsequently published in 1969) concentrated on Yale-New Haven Hospital to determine through in-depth review and cost those hospital units e.g. nursing service, house staff, which contribute to education.
1967	Pilot study of program cost allocation in seven medical centers.	Drawing upon teaching hospital study, uniform procedures tested to extend cost allocation methodology to total center, i.e. medical school, primary teaching hospital, other health schools. Federal interest indicated by their financial support of this study under contract with AAMC.
1969-70	Additional health centers costed programmatically to further test methodology arising from Seven Center Study.	Base of health centers broadened by adding fourteen more institutions, to develop pool of normative data; active participation of "Seven Centers" in special extension studies, e.g. use of computer systems in developing program cost data, validation of traditional effort analysis approach, library use studies.

Date	Development	Scope and Significance
1970	Base of centers involved with cost allocation procedures widened as additional institutions participated in AAMC study.	17 more health centers involved. First GBA-AAMC workshops conducted regionally using first printed hypothetical case model to demonstrate methodology; heavy emphasis on identifying contributed (imputed) costs, e.g. volunteer, depreciation; stressed common solution to similar problems with effort report completion e.g. joint appointments. Each of these centers contracted directly with BHME to conduct study and provide Bureau with data. Contract with AAMC to provide procedure guidance and consultation.
1971-72	Study extended to 38 additional institutions again under contract individually with BHME.	Intensification of consultative site visits to schools and structural workshops to achieve adherence to procedural guidelines, published in detail for the first time. Study extended for the first time to health institutions other than those with medical schools, e.g. osteopathic schools, free-standing dental schools; more than 130 organizational units found in modern academic health environment, fully costed. Heavy emphasis on identifying educational cost contribution of affiliated hospitals beyond major teaching hospital, treatment of GPT faculty's outside earnings, contribition of research and service to teaching, income identification. Various ways of gathering faculty effort (or time) tolerated.

Date	Development	Scope and Significance
1970-73	Appointment of Committee on the Financing of Medical Education and conduct of study of costs of undergraduate medical education.	Using previous cost studies at 12 medical schools (and other associated contributing entities) costs per student were compared following in depth institutional review. Explanations were examined for differences in cost among the schools studied. Particular attention was paid to joint cost problems and appropriate adjustments made.
1974	Financing of undergraduate medical education reviewed.	Difficulties found in tracking income to this program without new studies of schools' total programs and support by source.
1975 --	Study of Medical School resources	On going project, Federally supported, whereby initially 5 pilot schools and their cost studies selected to test a methodology for tracing the sources of funds and allocating them to all of the school's programs.